Proc. NIPR Symp. Antarct. Geosci., 3, 151, 1989

PEGMATITE FROM NESÖYA ISLAND, LÜTZOW-HOLM BAY, EAST ANTARCTICA: WITH SPECIAL REFERENCE TO GARNET-QUARTZ SYMPLEKTITE (ABSTRACT)

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Graphic intergrowth of garnet and quartz occurs in Nesöya Island on the north of Syowa Station, East Antarctica.

The intergrowth occupies small domains in microcline pegmatite dykes, which yield metamict cerianite and obliquely cut the basement gneisses and hornblende pegmatite. In the domains, reddish garnet and smoky quartz are in an interfingering relationship with the width of several millimeters. Fe-Ti oxides, K-feldspar and biotite are absent in the domains.

Garnet shows a weakly-zoned structure with a rather Ca-rich core, namely, the rim attached to quartz and plagioclase has the composition of $Gros_{14.1}Alm_{72.4}Pyr_{6.0}Spes_{7.2}$ and the core $Gros_{16.1}Alm_{71.2}Pyr_{5.5}Spes_{7.2}$. The low pyrope content is in contrast to the higher value in garnet from gneisses around Syowa Station, ranging from 18 to 46. Plagioclase occurs as an irregularly-shaped crystal in a narrow area along the rim of garnet. It is also zoned with a rather Ca-poor core (An=22.3) fringed by the rim (An=23.6–23.8). Or content is lower than 2.8 in both core and rim.

Judged from the texture, chemical composition and mineral species associated, it is inferred that the intergrowth has not formed through the interaction of quartzo-feldspathic magma with garnet in surrounding gneisses but directly crystallized from the magma. It seems possible that the crystallization has proceeded under rather low f_{O_2} condition, because the pegmatite contains no Fe-Ti oxides such as magnetite.

(*Received March 31, 1989; Revised manuscript received May 15, 1989*)